

season (our summer) by grasses in sufficient quantities to support numerous small herds of cattle.

The most favorable point from which to begin an ecological study of this desert region would be Payta and the inland town Piura behind it, which can be reached by railway. Having made arrangements at Piura for mules and a guide, the towns of Pacasmayo and Salaverry would not be too far apart to serve as centers for operation down the coast. The discomforts of travel through this desert, I understand, are not such as should deter any enterprising botanist from exploring it. The expenses, including steamboat travel for which the charges are twenty pounds sterling from Panama to Callao, would be easily within five dollars a day.—DAVID G. FAIRCHILD.

SECTION G (BOTANY), A. A. A. S., COLUMBUS MEETING.

THE meeting of section G began on Monday, August 21, in Townshend Hall of the Ohio State University, by a brief session for organization. In the afternoon at four o'clock, in Botanical Hall, the vice president, DR. CHARLES REID BARNES, delivered an address on *The progress and problems of plant physiology*. At the close of the address, the thanks of the section were voted to the speaker.

The reading of papers began on Tuesday, when the following were presented in full, or in abstract, or by title:

- F. L. STEVENS: The fertilization of *Albugo bliti*.
 FRANCIS RAMALEY: The embryo sac of *Leucocrinum montanum*.
 A. S. HITCHCOCK: Notes on subterranean organs.
 W. J. BEAL: Some monstrosities in spikelets of *Eragostis* and *Setaria*, with their meaning.
 CHARLES E. BESSEY: Studies of vegetation of the high Nebraska plains.
 A. D. SELBY: The tamarack swamp in Ohio.
 WM. SAUNDERS: The breeding of apples for the northwest plains.
 BYRON D. HALSTED: Field experiments with "nitragin" and other germ fertilizers.
 HENRY L. BOLLEY: The duration of bacterial existence under trial environments.

Wednesday was designated *Sullivant Day*, and was used to commemorate Wm. S. Sullivant (died 1873) and Leo Lesquereux (died 1888), two most able bryologists who were long residents of Columbus. Through the initiative and energy of Mrs. E. G. Britton and the

assistance of a number of botanists, an exhibition of many interesting bryological books and pamphlets, type specimens and original drawings of mosses, photographs, portraits, and autographs of bryologists, maps of distribution, etc., was given during the day in the large lecture room in Botanical Hall, where Wednesday's sessions were held. Portraits of Sullivant and Lesquereux, loaned by their daughters, formed the center of interest. This exhibition attracted much attention and was warmly commended.

The exercises in honor of Sullivant and Lesquereux were as follows:

Professor W. A. Kellerman read a portion of Gray's tribute to Sullivant.

Professor C. R. Barnes read a biography of Lesquereux.

Mrs. E. G. Britton gave a brief account of the species of mosses named for Sullivant.

A letter was read from Professor Arthur Hollick regarding the paleobotanical work of Lesquereux.

Professor L. M. Underwood gave a brief outline of the progress in the study of the Hepaticæ of North America, and Mrs. Britton for the Musci. Both addresses were illustrated by the books, pamphlets, photographs and maps of the exhibition.

Professor F. E. Lloyd exhibited the plates and type specimens of the twelve new species of liverworts described by Dr. M. A. Howe in his recent monograph.

Professor W. A. Kellerman presented to each member of the section a set of six species associated with the names of Sullivant and Riddell, an early Ohio botanist. The specimens were from type localities in most cases. They were *Sullivantia Sullivantii*, *Lonicera Sullivantii*, *Arabis patens*, *Solidago Ohionis*, *S. Riddellii*, and *Trillium nivale*.

Mrs. E. G. Britton also distributed specimens of *Orthotrichum Ohioense* and *Bryoxiphium Norvegicum*.

The following papers were also read:

CHARLES MOHR: Notes on the moss flora of Alabama.

A. J. GROUT: Suggestions for a more satisfactory classification of the pleurocarpous mosses.

BRUCE FINK: Notes concerning the study of lichen distribution in the Mississippi valley.

W. C. STEVENS: Botanical teaching in the secondary schools.

IDA CLENDENIN: Botanical teaching in the secondary schools.

The two papers on botanical teaching had been prepared by request and evoked an interesting discussion.

On Thursday the following papers were read :

H. A. HARDING: On the occurrence of the black rot of cabbage in Europe.

CHARLES E. BESSEY: One thousand miles for a fern.

WALTER T. SWINGLE: A summary of our knowledge of the fig.

WM. TRELEASE: The classification of botanical publications.

As a result of the discussion of this paper, transmitted by the Botanical Society of America, the following resolution was adopted :

Resolved, That Section G recommends as a basis for the classification of a botanical library the decimal system now in common use in the United States. The section requests that the suggestions embodied in Dr. Trelease's scheme for classification be adapted, so far as possible, to that system, and that the paper be then published in *Science* for the purpose of eliciting discussion.

EDWIN B. COPELAND: The geotropism of the hypocotyl of cucurbits.

A. F. WOODS: The destruction of chlorophyll by oxidizing enzymes.

Apropos of this paper the following action was taken :

Resolved, That Section G express its gratification at the appointment of an eminent physiological chemist to the staff of the Division of Vegetable Physiology and Pathology of the Department of Agriculture.

The secretary was instructed to communicate this resolution to the Secretary of Agriculture.

C. O. TOWNSEND: The effect of hydrocyanic acid gas upon the germination of seeds.

W. G. JOHNSON: Some physiological effects of hydrocyanic acid gas upon plants.

A communication was read from the Cambridge Botanical Supply Co., which has been publishing the card edition of the bibliography of American botany under the direction of the Section's Committee on Bibliography, stating that the publishers must terminate the present arrangement at the close of 1899 on account of the fact that the number of subscribers was insufficient to meet the cost of publication. After discussion the committee was increased to five by the appointment of D. T. MacDougal, of New York Botanical Garden, and J. F. Cowell, director of the Buffalo Botanical Garden. The section expressed its approval of the card index and empowered the committee to arrange for its continuance in any feasible way.

On Friday the following papers were read :

J. C. ARTHUR : The cultures of Uredineæ in 1899.

FRANCIS E. LLOYD : The embryology of *Vaillantia hispida*.

A. D. SELBY : The flora of Franklin county, Ohio.

ERWIN F. SMITH : The fungous infestations of agricultural soils in the United States.

C. E. BESSEY : Are the trees advancing or retreating upon the Nebraska plains?

WM. SAUNDERS : Useful trees and shrubs for the northwest plains of Canada.

H. L. BOLLEY and L. R. WALDRON : The occurrence of calcium oxalate and lignin during the differentiation of the buds of *Prunus Americana*.

HERMANN VON SCHRENK : Two diseases of Juniperus.

WM. B. STEWART : Etiolative reactions of *Sarracenia* and *Oxalis*.

JULIA B. CLIFFORD : The mycorrhiza of *Tipularia*.

HENRY KRAEMER : The crystals in *Datura Stramonium*.

At 3 P.M. on Friday the section adjourned, *sine die*.—C. R. B.

BOTANICAL SOCIETY OF AMERICA.

THE fifth annual meeting was held in Columbus, Ohio, August 18, 19, under the presidency of DR. LUCIEN MARCUS UNDERWOOD. All sessions were held in buildings of the Ohio State University. The address of the retiring president, DR. NATHANIEL LORD BRITTON, upon *The development of the New York Botanical Garden* was given in the chapel of University Hall on Friday evening. It was copiously illustrated with lantern slides, showing the original site, with its natural beauties, the progress of the planting, buildings, etc. The address will be published in full in a later number of the GAZETTE. At the close of the address the thanks of the audience were voted to the speaker for the interesting and able presentation of facts regarding the great institution of which he is director. The following papers were read in full or in abstract or by title before the society. Abstracts of some of them will be found in later pages:

CHARLES E. BESSEY : *Apetalý and diæciousness*.

BRADLEY M. DAVIS : *The spore-mother-cells of Anthoceros*.

DANIEL T. MACDOUGAL : *Symbiosis and saprophytism*.

DAVID M. MOTTIER : *The effect of centrifugal force upon the cell*.

NATHANIEL L. BRITTON : *The American species of Arisæma*.